In the Claims:

1. (Original) A system for compensating a power amplifier for variations due to temperature comprising:

a power amplifier adapted to amplify an input signal based on a supply voltage, thereby producing an output signal; and

circuitry adapted to generate the supply voltage based on a control signal and temperature such that a change in temperature results in a change in the supply voltage, wherein the change in the supply voltage offsets variations in characteristics of the power amplifier due to variations in temperature.

2. (Original) The system of claim 1 wherein the output power of the power amplifier has essentially no variation due to temperature variation over a defined temperature range.

3. (Original) The system of claim 1 wherein the circuitry comprises:

a voltage generator adapted to generate a first voltage based on temperature such that the first voltage varies with temperature in such a manner as to offset variations in the power amplifier due to variations in temperature;

amplification circuitry adapted to amplify the first voltage to provide a reference voltage; and

a voltage regulator adapted to provide the supply voltage based on the reference voltage and the control signal.

4. (Original) The system of claim 3 wherein the voltage generator is a bandgap voltage generator.

5. (Original) The system of claim 3 wherein the voltage generator comprises at least one resistor having a resistance value that determines an overall temperature coefficient of the voltage generator.

6. (Original) The system of claim 1 wherein the control signal is an amplitude component of data to be transmitted such that the power amplifier modulates the input signal by the amplitude component of the data to be transmitted.

7. (Original) The system of claim 6 wherein the input signal provided to the power amplifier includes a radio frequency (RF) carrier signal modulated by a phase component of data to be transmitted.

8. (Original) The system of claim 1 wherein the control signal is a power control signal.

9. (Original) The system of claim 1 wherein the power amplifier is fabricated in Gallium Arsenide (GaAs).

10. (Original) The system of claim 9 wherein the circuitry is fabricated using Complementary Metal Oxide Semiconductor (CMOS) technology and the power amplifier and the circuitry are integrated into a single module.

11. (Currently Amended) A method for compensating a power amplifier for variations due to temperature comprising:

generating a supply voltage based on a control signal and temperature such that a change in temperature results in a change in the supply voltage, wherein the change in the supply voltage offsets variations in characteristics of the power amplifier due to variations in temperature; and

amplifying an input signal based on the supply voltage, thereby providing an output signal having essentially no variation due to temperature variation over a defined temperature range.

12. (Currently Amended) The method of claim 11 wherein the generating step comprises:

generating a first voltage based on temperature such that the first voltage varies with temperature in such a manner as to offset variations in the characteristics of the power amplifier due to variations in temperature;

amplifying the first voltage to provide a reference voltage; and

generating the supply voltage from a source voltage based on the reference voltage and the control signal.

13. (Original) The method of claim 12 wherein an overall temperature coefficient of the generating the first voltage step is determined based on at least one resistor.

14. (Original) The method of claim 11 wherein the control signal is an amplitude component of data to be transmitted such that the amplifying the input signal step modulates the input signal by the amplitude component of the data to be transmitted.

15. (Original) The method of claim 14 wherein the input signal provided to the power amplifier includes a radio frequency (RF) carrier signal modulated by a phase component of data to be transmitted.

16. (Original) The method of claim 11 wherein the control signal is a power control signal that controls the gain of the amplifying the input signal step.

17. (Original) A system for compensating a power amplifier for variations due to temperature comprising:

a power amplifier adapted to amplify an input signal based on the supply voltage, thereby producing an output signal, the input signal including a radio frequency (RF) carrier signal modulated by a phase component of a polar modulation signal;

a voltage generator adapted to generate a first voltage based on temperature such that the first voltage varies with temperature in such a manner as to offset variations in the power amplifier due to variations in temperature;

amplification circuitry adapted to amplify the first voltage to provide a reference voltage; and

a voltage regulator adapted to provide the supply voltage based on the reference voltage and an amplitude component the polar modulation signal such that the power amplifier modulates the input signal by the amplitude component of the polar modulation signal.

18. (Original) The system of claim 17 wherein the output power of the power amplifier has essentially no variation due to temperature variation over a defined temperature range.

19. (Original) The system of claim 17 wherein the voltage generator comprises at least one resistor having a resistance value that determines an overall temperature coefficient of the voltage generator.

20. (Original) The system of claim 17 wherein the power amplifier is fabricated in Gallium Arsenide (GaAs).

21. (Original) The system of claim 20 wherein the voltage generator, the amplification circuitry, and the voltage regulator are fabricated using Complementary Metal Oxide Semiconductor (CMOS) technology and integrated with the power amplifier in a single module.

22. (Original) A system for compensating a power amplifier for variations due to temperature comprising:

a power amplifier adapted to amplify an input signal based on a supply voltage, and produce an output signal;

a bandgap voltage generator adapted to generate a first voltage based on temperature such that the first voltage varies with temperature in such a manner as to offset variations in the power amplifier due to variations in temperature;

amplification circuitry adapted to amplify the first voltage to provide a reference voltage; and

a voltage regulator adapted to provide the supply voltage based on the reference voltage and a control signal such that a change in temperature results in a change in the supply voltage.

23. (Original) The system of claim 22 wherein the output power of the power amplifier has essentially no variation due to temperature variation over a defined temperature range.

24. (Original) The system of claim 22 wherein the control signal is an amplitude component of data to be transmitted such that the power amplifier modulates the input signal by the amplitude component of the data to be transmitted.

25. (Original) The system of claim 24 wherein the input signal provided to the power amplifier includes a radio frequency (RF) carrier signal modulated by a phase component of data to be transmitted.

26. (Original) The system of claim 22 wherein the control signal is a power control signal.